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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,161	07/23/2003	Jeong-Hwan Song	5000-1-414	8002

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EXAMINER	
LEPISTO, RYAN A	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/625,161	SONG ET AL.	
	Examiner	Art Unit	
	Ryan Lepisto	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-6,8-13 and 15-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-6,8-13 and 15-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

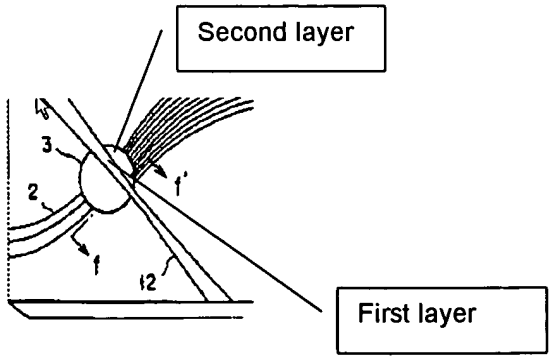
DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2-3, 5, 8-10, 12, 15-16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by **Inoue et al (US 6,304,687 B1)** (Inoue). Inoue teaches an athermal arrayed waveguide grating (AWG) (Figs. 32-33) comprising a substrate (1) having the following components all extending across it: a quartz input waveguide (2), a grating array (11), an output waveguide (6), a second slab waveguide (5) and a first slab waveguide (3) having a first (10) and second (3, the layer right of the first layer 10, see figure below) layer with different refractive indices (the first layer is a silicone resin and the second is quartz glass (n = 1.46)) (column 9 line 40, column 15 line 11). The first layer has a first surface that optical couples and optically joins in series the input waveguide (2) to the second layer (3) (via the other surface of the first layer), which couples the first layer (10) to the grating array (11) via a first surface (nearest to the first layer) to a second surface (nearest the grating array).



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as applied to claims 2-3, 5, 8-10, 12, 15-16, 18 and 20 above, and further in view of Terada et al (US 4,812,012) (Terada).

Inoue teaches the athermal arrayed-waveguide described above.

Inoue does not teach expressly a layer of material in the first slab waveguide having a refractive index of 1.415.

Terada teaches materials used in forming optical waveguides, where one is a polymer, polyfluoromethacrylate having a refractive index of 1.415 (column 6 lines 63-64).

Inoue and Terada are analogous art because they are from the same field of endeavor, optical systems using polymer optical waveguide materials.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the polymer as taught by Terada for the first layer as taught by Inoue since Inoue teaches that this layer may be different methacrylates (column 8 lines 14-41).

The motivation for doing so would have been to increase efficiency in the waveguide grating array by using material know to produce waveguides capable of

performing at high speeds and accuracy (Terada, column 7 line 20 through column 8 line 4).

Claims 6, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as applied to claims 2-3, 5, 8-10, 12, 15-16, 18 and 20 above, and further in view of what would have been obvious to one of ordinary skill in the art at the time of the invention.

Inoue teaches the athermal arrayed-waveguide described above.

Inoue does not teach expressly the first layer of the first slab having a length of 21.07 μm in a direction in which the optical signal travels.

At the time the invention was made, it would obvious to a person of ordinary skill in the art to have a length for the first layer of about 21.07 μm in that this is a dimension that is typical in known waveguide gratings. Applicant has not disclosed that an exact length of 21.07 μm provides an advantage, is used for a particular purpose, or solves a stated problem over say, 21.03 μm or any dimension well know in the art. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with waveguide grating with the differing refractive index layers as taught by Inoue because it compensate for temperature fluctuations.

Therefore, it would have been obvious to one of ordinary skill in this art to modify Inoue to obtain the invention as specified in claims 6, 13 and 19.

The motivation would have been to create an efficient waveguide-grating array that is not associated with optical loses that result from a shift in wavelengths.

Response to Arguments

Applicant's arguments with respect to rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-Th 7:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan Lepisto
Art Unit 2883
Date: 8/14/06

Frank Font
Supervisory Patent Examiner
Technology Center 2800